

MEMORANDUM

Date: March 27, 2009

To: Ken Marcy Task Monitor, EPA, Seattle, WA

From: Franki J. Jewell, START-3 Program Manager, TechLaw, Inc., Port Orchard, WA

Subject: Preliminary Hazard Ranking System Score
Titan S-2 Area Groundwater
Warden, Grant County, Washington

Reference: Contract No. EP-S7-06-03
Technical Directive Document No. 06-07-0011

A preliminary Hazard Ranking System (HRS) score of 1.48 was derived for the Titan S-2 Area Groundwater site (Titan S2) which is located in Warden, Grant County, Washington, as part of a Site Inspection. The Titan S2 site consists of the area surrounding the former Titan S2 missile launch site, specifically potentially contaminated groundwater in the area.

The HRS scoresheets, which were generated using QuickScore version 2.3 software, are attached. The following information and assumptions were used to derive the score.

Sources:

Sources in the Titan S2 area include the potentially contaminated groundwater and sediments. Inorganic constituents were detected in the groundwater, therefore the groundwater pathway was evaluated for contamination. As no overland route for the surface water pathway could be found, no sediment samples were collected. Therefore, the surface water pathway was not evaluated any further.

The contaminated groundwater (groundwater plume) is a source type "other" and is only available to the groundwater pathway. There is no containment structure associated with this source type. The Hazardous Waste Quantity and Waste Characteristics factor value is 10.

Groundwater Migration Pathway:

- Elevated concentrations of chromium, silver, and zinc were detected within drinking water well samples collected.
- Targets were evaluated on observed contamination.
- The highest toxicity/mobility factor used was 10,000 based on chromium as the contaminant of concern. Chromium was detected at an elevated concentration in one downgradient sample.
- A total of two wells had an observed release and were evaluated as Level II contamination. The remaining population was evaluated as potential targets.
- The groundwater migration pathway score is 2.95.

Therefore, the overall score for the Site is 1.48.

**** CONFIDENTIAL ****
 ****PRE-DECISIONAL DOCUMENT ****
 **** SUMMARY SCORESHEET ****
 **** FOR COMPUTING PROJECTED HRS SCORE ****



**** Do Not Cite or Quote ****

Site Name: Titan S2 Area Groundwater Region: 10
 City, County, State: Warden, Grant, WA Evaluator: Alexis Ande, START-3
 EPA ID#: WAN001002314 Date: 03/13/2009
 Lat/Long: 46° 56' 41.31" N / 119° 2' 14.52" W T/R/S: Section 33, Township 17 North, Range 30 East

Congressional District: 110

This Scoresheet is for: Groundwater contamination

Scenario Name: Groundwater contamination

Description: Potential groundwater contamination from the Titan S2 site. No on-site samples collected.

S	pathway	S ² pathway
Ground Water Migration Pathway Score (S _{gw}) 2.95		8.7025
Surface Water Migration Pathway Score (S _{sw})		
Soil Exposure Pathway Score (S _s)		
Air Migration Score (S _a)		
S ² _{gw} + S ² _{sw} + S ² _s + S ² _a	8.7025	
(S ² _{gw} + S ² _{sw} + S ² _s + S ² _a)/4	2.175625	
/ (S ² _{gw} + S ² _{sw} + S ² _s + S ² _a)/4		1.48

u Pathways not assigned a score (explain):

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated: Wanapum Aquifer		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	550
2. Potential to Release:		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550	550
Waste Characteristics:		
4. Toxicity/Mobility	(a)	10000
5. Hazardous Waste Quantity	(a)	1
6. Waste Characteristics	100	10
Targets:		
7. Nearest Well	(b)	20
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	5.84
8c. Potential Contamination	(b)	13.37
8d. Population (lines 8a + 8b + 8c)	(b)	19.21
9. Resources	5	5
10. Wellhead Protection Area	20	0
11. Targets (lines 7 + 8d + 9 + 10)	(b)	44.21
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000] ^c	100	2.94733333333333
Ground Water Migration Pathway Score:		
13. Pathway Score (S _{gw}), (highest value from line 12 for all aquifers evaluated) ^c	100	2.94733333333333

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer